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Laser News

Osram announces GaInN-based blue laser, Implant Sciences gain US funding

SOME of the latest developments in blue laser research have seen Osram Opto Semiconductors (Regensburg, Germany) announce Europe's first GaInN-based laser and Implant Sciences (Wakefield, MA, USA) receive US$750 000 in US Army funding to continue development of a similar device based on ion implanted material.

Osram Opto's success came in the course of a research project sponsored by the German government that also involved Infineon Technologies, the Fraunhofer Institute for Applied Solid State Physics and the universities of Stuttgart, Braunschweig and Ulm. Pulsed laser emission was achieved at room temperature, with a threshold current density of less than 20 kA.cm^{-2} and 25 V turn-on voltage. The laser was epitaxially grown on a SiC-substrate and emits in the blue/violet spectral range at a wavelength of 420 nm.

Meanwhile, Implant Sciences' funding is for the second phase of a two-phase R&D programme involving its ion implantation technology. Phase I successfully developed the world's first ion implanted blue LED from GaN-based material, with phase II intended to further this technology to develop a blue laser. The company's technology implants Mg and Si into adjacent regions of a GaN MOCVD epilayer. After implantation, the sample is annealed to activate the dopants, with the region implanted with Mg converted to p-type conductivity exhibiting luminescence typically associated with substitutional Mg dopants. The company says the process simplifies contacting procedures, increases device yields, and allows flip-chip bonding. It says the improvements could potentially double the brightness of both blue and green LEDs, and it is now looking for further success with the laser diodes.

"We believe this contract will permit us to expand into large semiconductor device markets using our core technologies and equipment currently used for our medical device products," says Dr. Anthony J. Armini, Implant Sciences president. "This new technology should provide GaN laser diodes with higher power capability than those presently available. We plan to license the new technology to device manufacturers upon completion of our research."

Osram Opto; tel: +49-941-2022521; fax: +49-941-2022851; Implant Sciences; tel: +1-781-246-0700; fax: +1-781-246-1167.

Business News

Alpha completes GaAs IC fab expansion

ALPHA Industries has completed the first phase of an expansion programme that has upgraded and expanded the clean room space at its GaAs IC fabrication facility in Woburn, MA, USA. The expansion increases the fab's production capacity to four times what it was a year ago.

The company also plans to accelerate the second phase of the expansion programme, as a result of continuing strong demand from its wireless handset customers. This second phase will involve installation of additional production equipment in a portion of the existing clean room space. It is expected to cost US$12 million and to be complete by mid-2000.

Bruce Nonnemaker, Alpha's director of operations, says the expansion process has been carefully planned to provide for even greater capacity in the future. "All of the new equipment, and much of the existing equipment, is 6" wafer compatible," he says. "We have moved to a substantially higher level of automation, and new equipment will allow us to reduce our line width to 0.4 microns or lower. We will be able to convert the fab to high-volume 6" wafer operation when we choose, with limited capital expenditures."

Alpha has also just introduced its first GaAs HBT product, a low-voltage, high-efficiency linear power amplifier for use in PCS CDMA digital wireless handsets. This is the first commercial product from its technology alliance with Infinesse Corp (Los Angeles, CA, USA) and Network Device Inc (Sunnyvale, CA, USA), announced in February 1999. The amplifier is currently being sampled to Alpha's wireless customers worldwide.

Other developments at Alpha have seen David Aldrich elected as president and COO. Formerly general manger for the company's Wireless Semiconductor operations, he will report to CEO Tom Leonard. Other appointments have seen Bruce Nonnemaker elected vice president, operations, and G. Conlin join the company as its new director of worldwide sales for all its semiconductor products.

Alpha Industries; tel: +1-781-935-5150; fax: +1-617-824-4579.